



I-440 DESIGN BUILD PROJECT UPDATE

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I-440 Project: What is Design-Build?

A design-build project combines design and construction in a single contract.

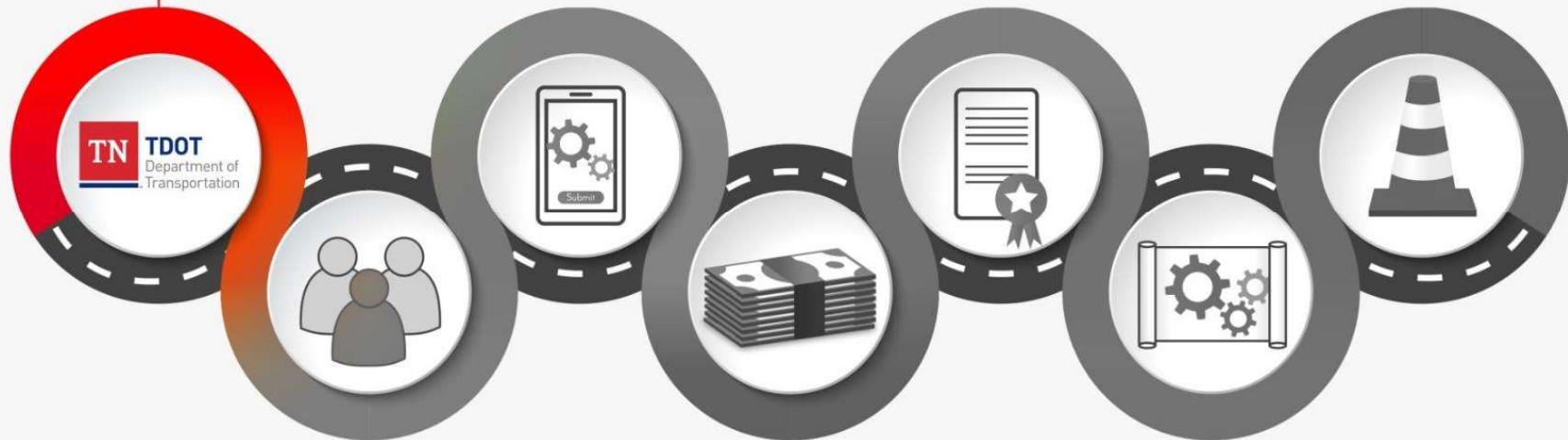
TDOT defines the standards,
scope, and specifications



The selected design-builder
satisfies those requirements

Design-Build Project Delivery

01 TDOT DEFINES
THE SPECIFICATIONS
FOR THE PROJECT



Owner's Representative Scope

PRELIMINARY DESIGN

- Preliminary (30%) design plans for all roadways bridges, noise walls, and drainage
- Pavement Design
- Project coordination/meetings
- Construction Schedule
- Cost Estimate

PROCUREMENT PHASE

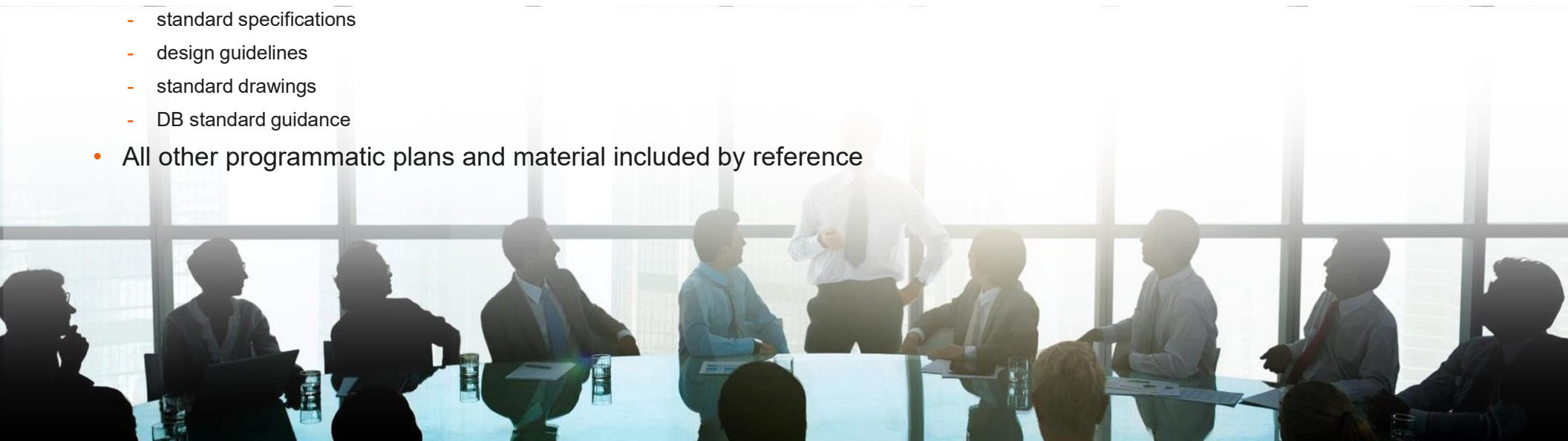
- Develop RFP document
- Support TDOT from RFP release to Contract Award
- Assist with Technical input, clarification, and contract development.

POST AWARD SERVICES

- Review project schedule, shop drawings, and change orders
- Attend meetings

What is in the RFP?

- Contract Book 3 : Project Specific Information
- Contract Book 2 : Design-Build Contract
- Contract Book 1 : Instructions To Design-Builders
- The Department's
 - supplemental specifications
 - construction circular letters
 - standard specifications
 - design guidelines
 - standard drawings
 - DB standard guidance
- All other programmatic plans and material included by reference



What is in the RFP?

- **Contract Book 3 : Project Specific Information**

- Scope of Work (Roadway, Structures, Utilities, Environmental, ROW etc.)
- Pavement Design
- Personnel requirements
- NEPA documents
- Reference information (preliminary design, survey reports etc.)

- **Contract Book 2 : Contract**

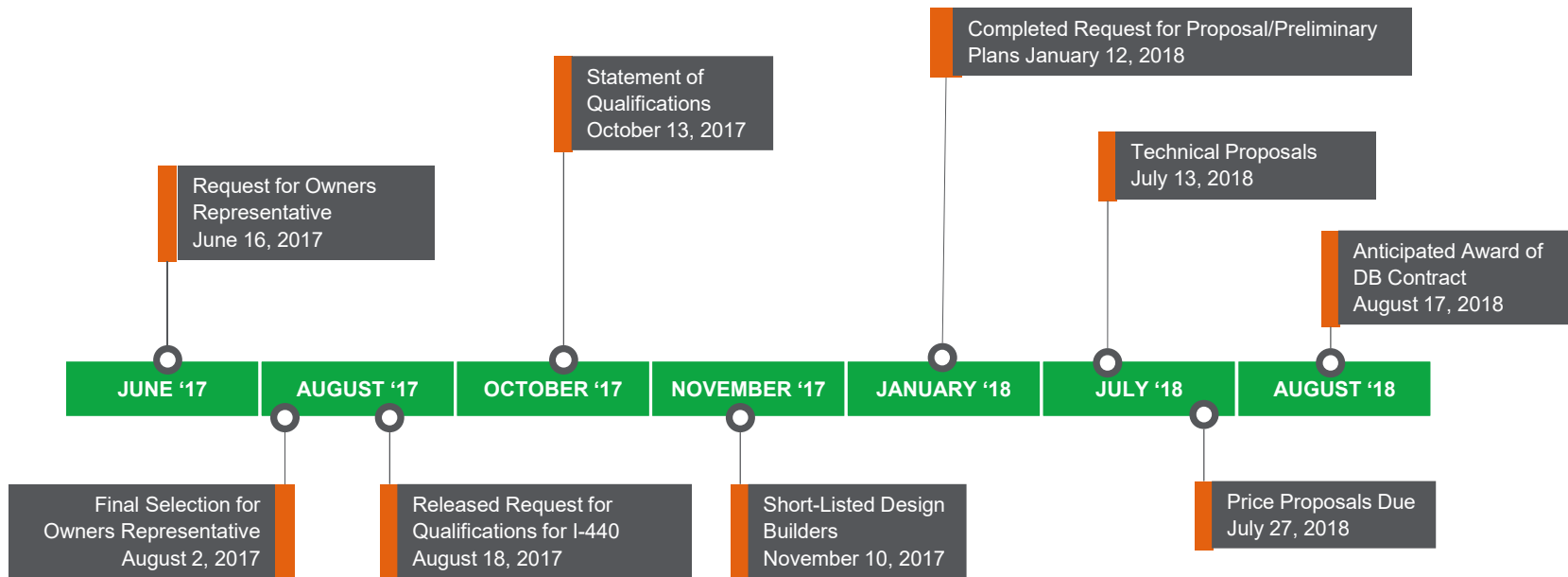
- Agreement between Parties
- Terms and Conditions
- Special Provisions
- Design and Construction services

- **Contract Book 1 : Instructions to Design-Builders**

- Scope of Solicitation / Project Description and Overview
- Project Goals including Completion Date
- Critical Path Method (CPM) requirements
- Technical and Price Proposal requirements
- Technical Response Categories and Scoring
- Price Proposal Evaluation Methodology
- ATC requirements



Aggressive Schedule



I-440 Traffic Continues Growing

(AADT) Annual Average Daily Traffic

- 2016 – 94,801
(Along the corridor)

- 2021 – 102,968
(Along the corridor)

- 2041 – 123,688
(Along the corridor)

- Lowest between Murphy Road and West End
 - 85,890 (2021)
 - 104,360 (2041)

- Highest between Hillsboro Road & I-65
 - 115,740 (2021)
 - 138,400 (2041)

- 5% Trucks

I-440 Project Goals

- **Address Pavement**

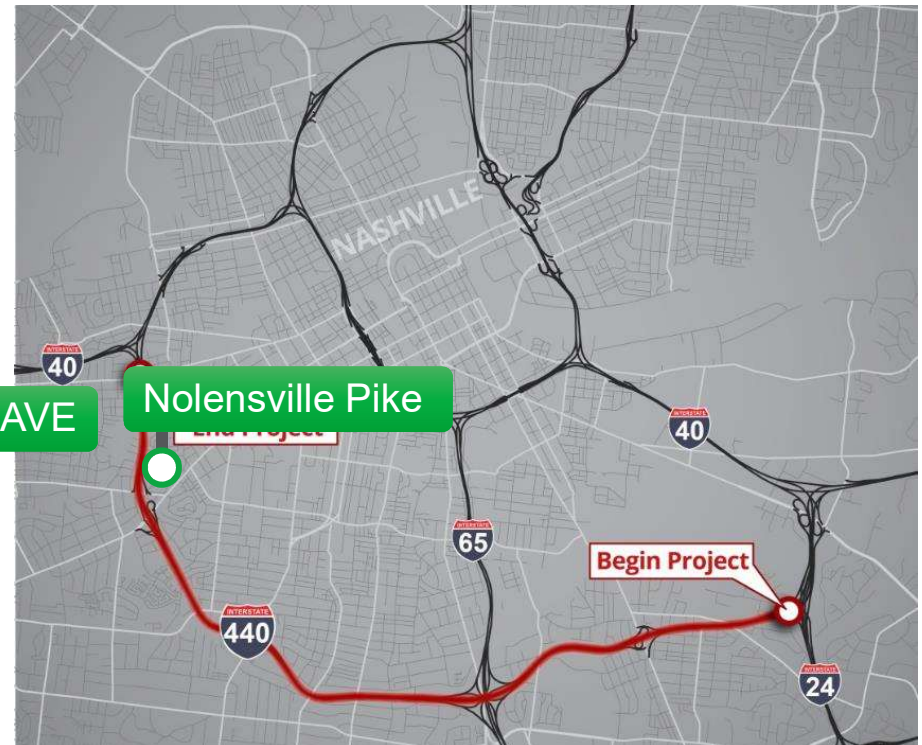
- Concrete is **30 years old**, severe deterioration
- Recent paving not going to last

- **Improve Safety**

- Crash rates **Murphy Road** double (**1.8x**) the statewide average
- Since 2008, there have **West End Ave.** I-440

- **Address Congestion**

- Hillsboro Road / 21st Avenue
- West End Avenue
- Bridge over I-65
- Eastbound Murphy Road Ramp Queue
- Westbound Hillsboro Road Ramp Queue



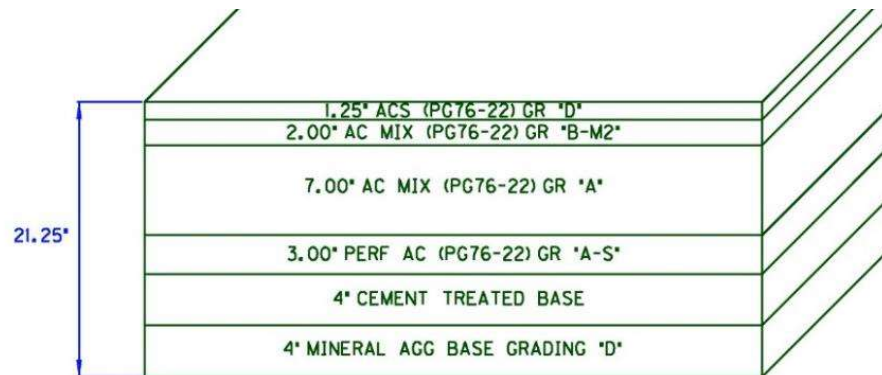
Pavement Sections

Existing Concrete Pavement

- 10" Concrete Pavement
- 3.5"-13.8" Aggregate

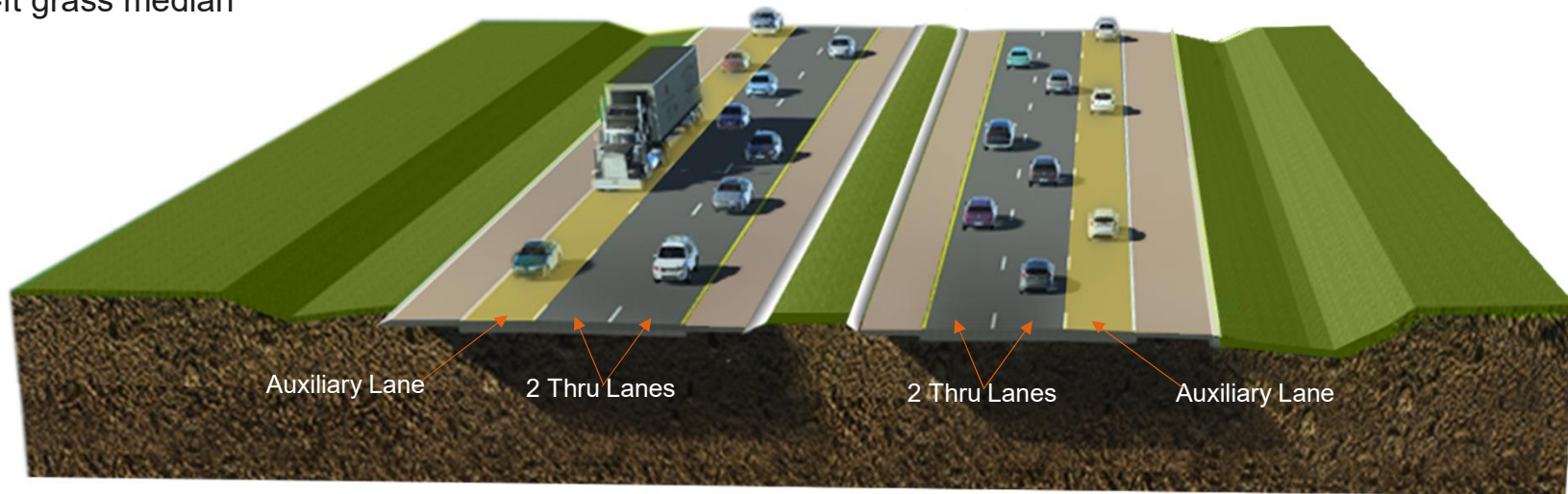
Proposed Asphalt Pavement

- Minimum Depth to Refusal – 21.6"



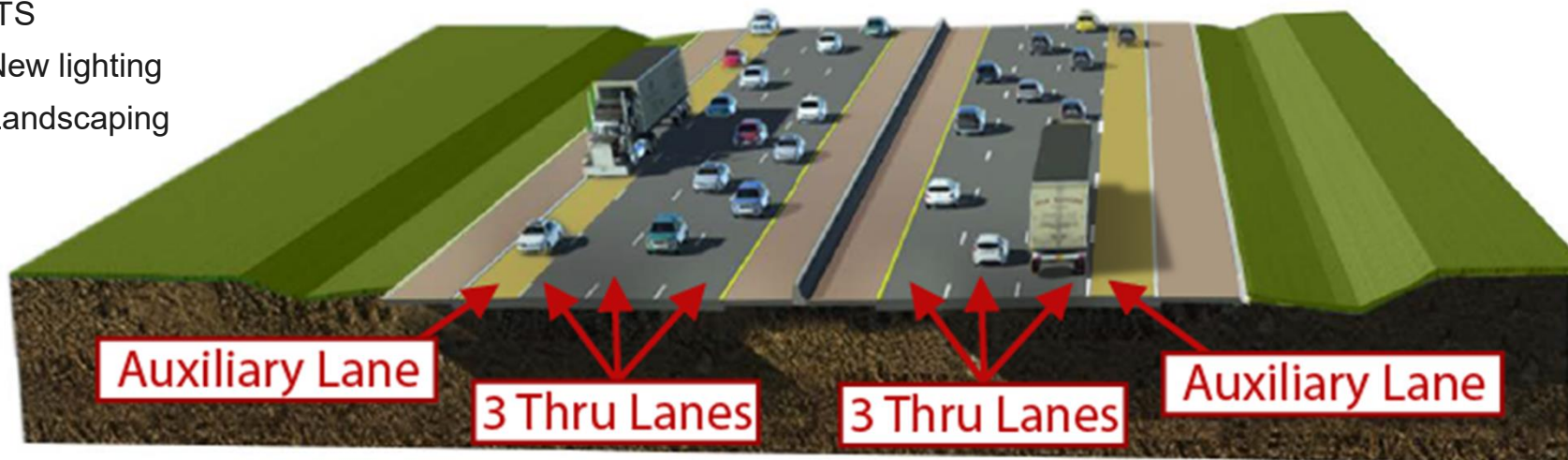
I-440 Existing

- Two travel lanes, east and west
- Auxiliary lanes between interchanges
- 8-ft inside shoulders, 12-ft outside
- 2-ft curb
- 13-ft grass median

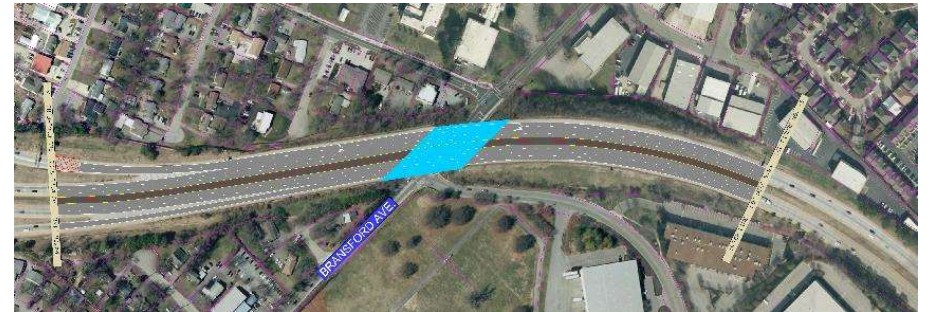
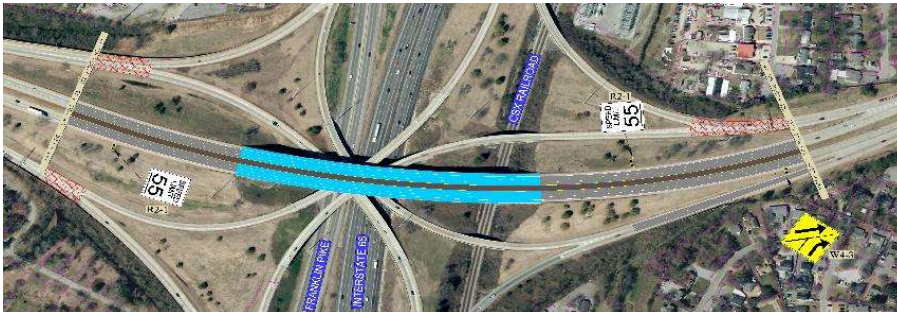


I-440 Proposed Improvements

- Remove/replace pavement
- Three travel lanes in each direction
- Auxiliary lanes between interchanges
- New noise walls
- ITS
- New lighting
- Landscaping



I-440 Overpasses



- Bridges designed in 1981 and 1982
- Bridges built in 1985
- All single-spans except I-65 which is a six-span

Traffic Control Considerations

- Emergency response challenges due to construction conditions and related congestion
- Closure of exit only lanes and merge conditions from on-ramps will create delays along entire I-440 corridor
- Substantial congestion on local network and I-440
- Minimizing construction time



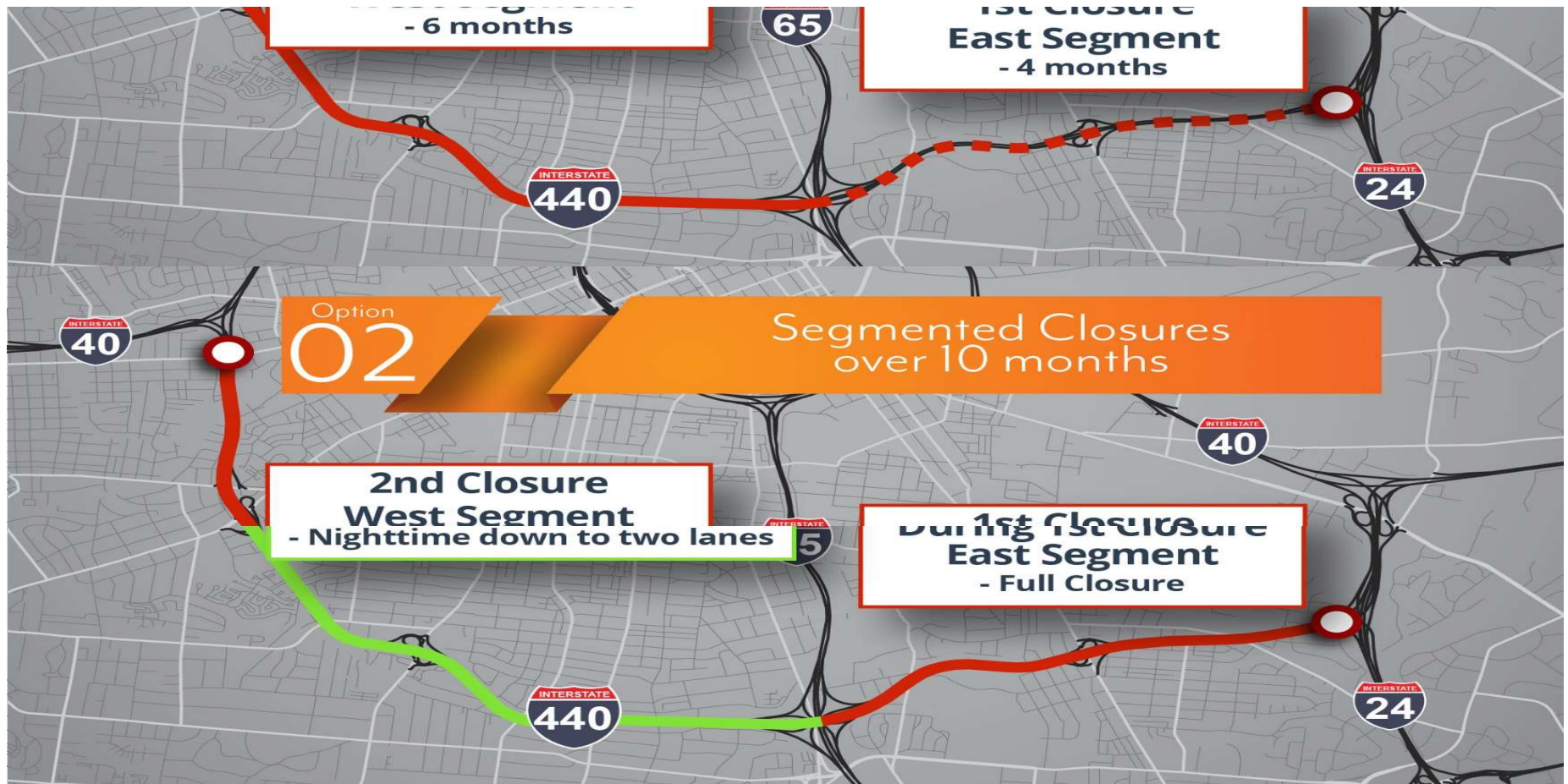
I-440 Traffic Control Options

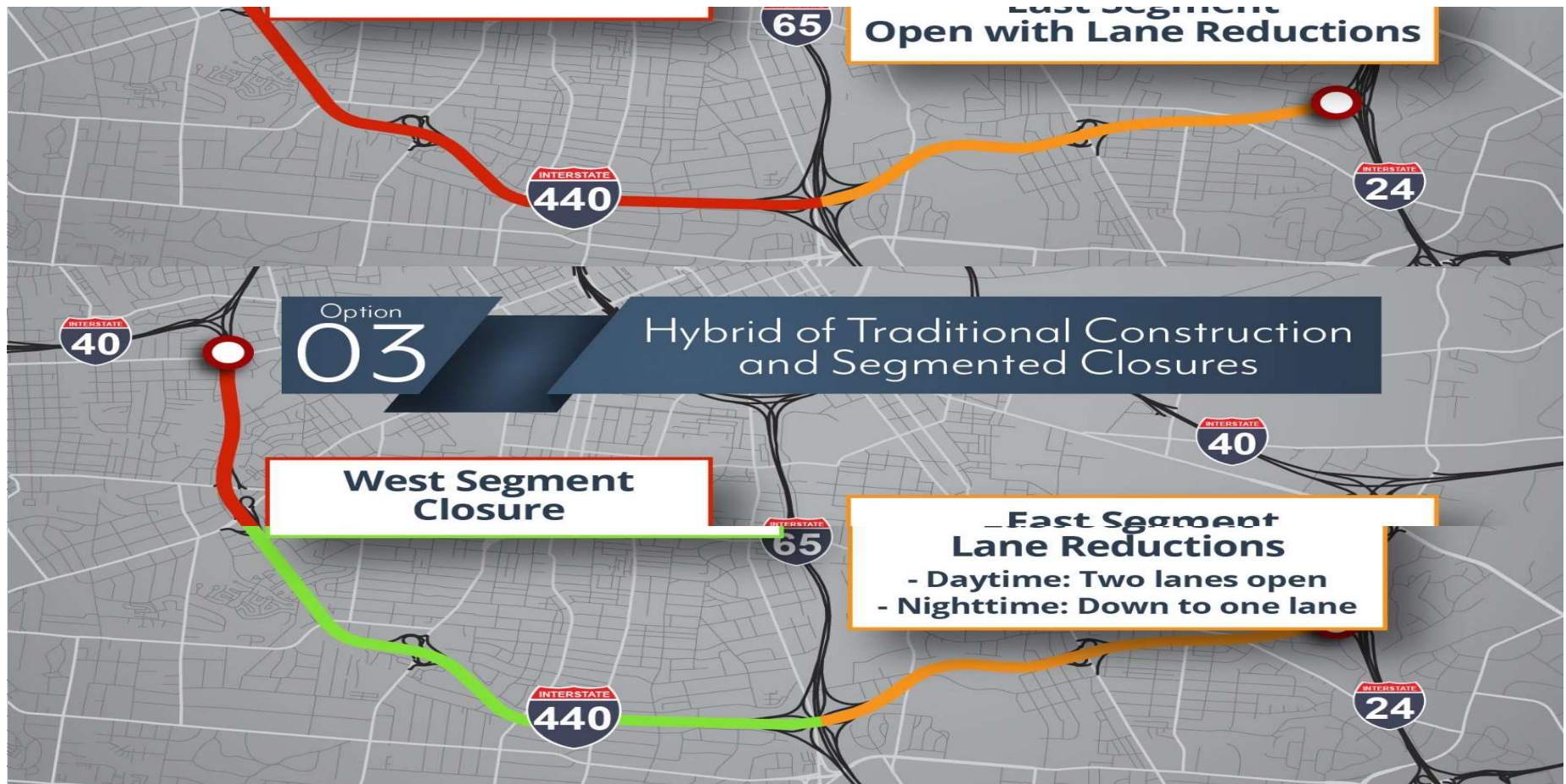
Option
01 Traditional Construction
over 36 months

Option
02 Segmented Closures
over 10 months

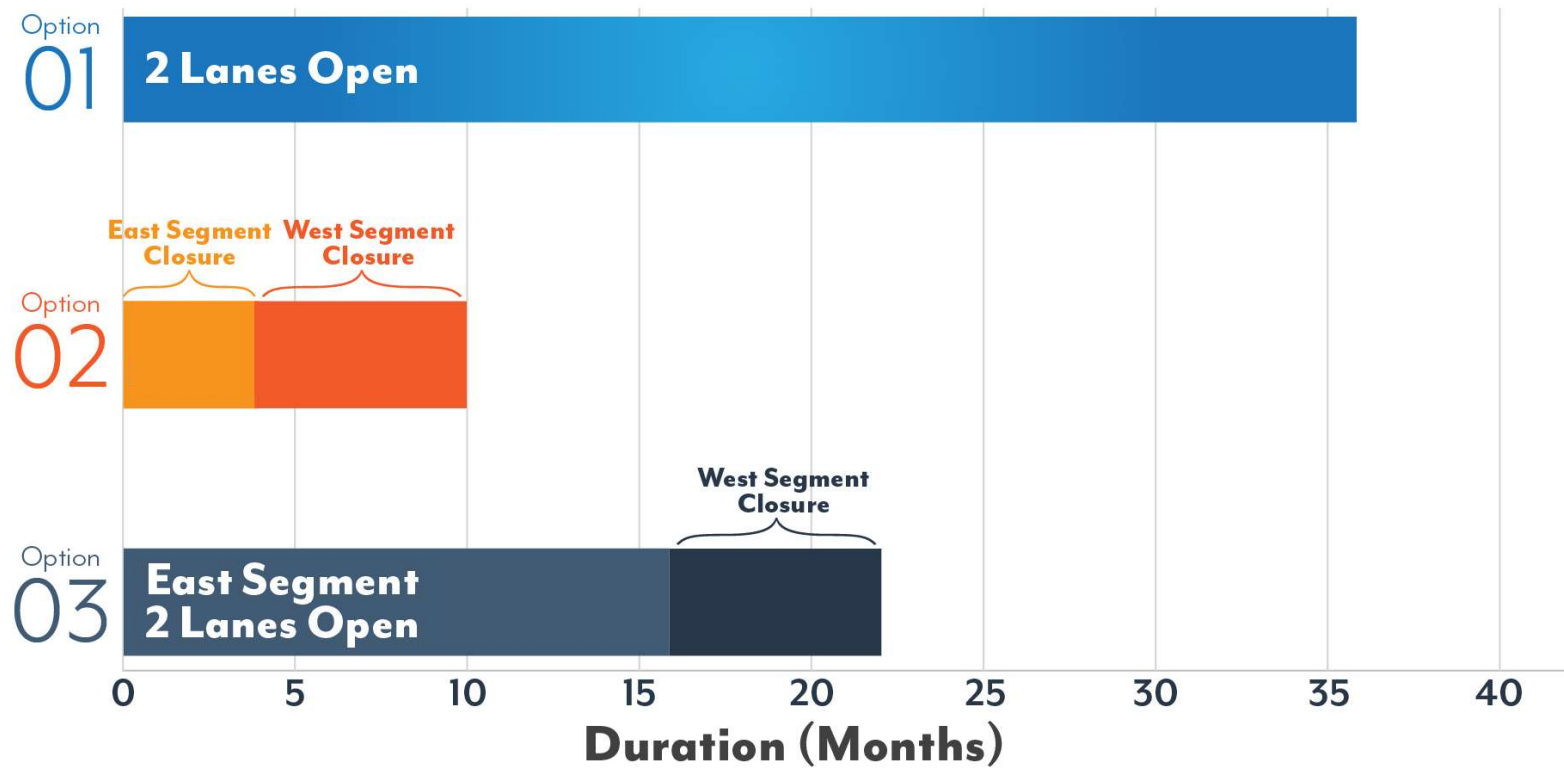
Option
03 Hybrid of Traditional Construction
and Segmented Closures







Traffic Control Durations





I-440 Proposed Bridge Widening

- Bridge safety improvements add four (4) steel beams
- Each beam is 6' H x 32" D weighing 493,000 lbs.
- More than 1,026,000 lbs. of new steel support each bridge, totaling more than 2 million lbs. of new steel eastbound/westbound
- Two I-65 @ I-440 weekend closures allowed outside I-440 segmented closures



I-440 Reconstruction Restrictions

- Closures would occur in two segments, with only one segment being closed at any given time
- East segment must be completed first
- Closure periods can only be from either
 - March 4 – November 7, 2019
 - January 6 - November 6, 2020
- No full segmented closure would be in place from Thanksgiving through New Year holidays
- Contractor must maintain access for emergency services
- Substantial liquidated damages would be assessed against the contractor if opening dates are not met or if project is not completed on time

I-440 Reconstruction – Key Dates

- **July 13, 2018** – Technical Proposals
- **July 27, 2018** – Price Proposals
- **August 2018** – Award of I-440 Reconstruction contract
- **Late Fall 2018** – Construction activities begin

Delay Management During Construction

Develop intersection control strategies and striping improvements:

- 15 arterial and 3 interstate corridors
- Over 165 signalized intersections
- Multiple striping improvement locations anticipated

Active corridor management

- Monitor real time traffic flow
- Adjust timing to minimize delay

Benefits

- Better utilization of street network ~ reduced delay
- Real time adjustments ~ instant queue reduction
- Combined Metro and TDOT coordination improves driver safety and traffic flow



I-440 RECONSTRUCTION PROJECT

For more info:

www.tn.gov/tdot/projects/region-3/interstate-440

